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Assessment of Depression among Severely Burned Patients at Mansoura University Hospitals

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1.ABSTRACT

Background: Burn injuries are one of the most severe traumatic and painful injuries with high morbidity and mortality rates. **The aim** of this study is to assess the level of depression among hospitalized burned patients. **Research design:** A descriptive cross sectional design was applied in this study. **Setting:** Plastic and Burn Surgery Center at Mansoura University Hospitals. **Sample:** A sample of 60 severely burned patients was included in the study. **Tools:** Two tools were utilized in this study: structured questionnaire to assess demographic and clinical data and the second tool was beck depression inventory. **Results** of this study demonstrated that the mean age of participants was 31.6 +10.07 years. The majority 54 (90%) of patients had third degree burns. Depression was found among 44 (73.3%) patients with predominance of sever depression (56.6%). **Conclusion**: The majority of burned patients were found to have depression with preponderance of severe level of depression which highlights the negative effect of sever burn on the psychological health of burned patients. **Recommendations**: Psychological health training programs should be developed to educate burn team members on the short and long term psychological consequences of burns, along with effective ways for improving psychological health.

Keywords: *Burns, Hospitalized, Depression, Psychologica*

2.Introduction:

Burn injuries are among the most severe types of traumatic painful injuries. Multiple organ failure may emerge from the immunological, inflammatory, and metabolic abnormalities associated with severe burns. Aside from their physical health, burn patients' quality of life and psychological well-being are negatively affected **(Jeschke et al., 2020).**

Burn injury is a global public health issue that is considerably associated with high rates of both mortality and morbidity. According to estimates, one burn injury happens for every thousand person in Egypt. Furthermore, it was revealed that burns account for 12.5% of all hospital admissions and that 49% of patients admitted with burns had negative outcomes **(Fathy, 2014)**.

Burn survivors are profoundly and extremely affected by severe contractures and scars after burn injuries which make them may feel a sense of self-loss since loss since they frequently depend on family and friends, which increases their financial burden **(Agbenorku et al., 2016).** Victims of burns experience negative impacts on their psychological health, including depression, sleeping issues, post-traumatic stress disorder (PTSD) and decreased quality of life (**Waqas et al., 2018).**

In light of this, long-term programs of physical and psychological rehabilitation are essential for improving the quality of life of burned patients who suffer from unavoidable and preventable physical and psychological morbidities. Because rehabilitation begins on the first day a patient is admitted to the hospital and continues for years, the formation of a skilled multidisciplinary team is an essential requirement from day one in order to contribute to the treatment of burned patients.

Because nurses play an important role and are the main component of the multidisciplinary burn team, they are accountable for the overall management of a burn patient throughout all phases of the treatment process. As a result, nurses are required to have knowledge of the various skills that are necessary for treating a really traumatic injury as burn. In order to effectively apply theories developed in clinical psychology, social and communication skills, and rehabilitation medicine to nursing care and assist burned survivors in easily

and effectively reintegrating into society, nurses need to have a strong foundation in all of these areas and a strong understanding of each **(Li et al., 2017).**

2.1Aim of the study:

The aim of this study is to assess level of depression among patients with sever burns.

3.Subjects and Method:

3.1Design:

A descriptive cross-sectional design was used and applied.

3.2Setting:

The research was carried out at the Plastic, and Burn Surgery Center of Mansoura University in the inpatient departments.

3.3Study Subjects:

A suitable sample of 60 inpatient with severe second and third degree burns was selected and interviewed.

3.4Tools:

Data were collected by using two tools

that were used in this study for data collection.

Tool (1):Socio-demographic and clinical data questionnaire.

It is used to assess and analyze the sociodemographic and clinical data of the participants, the researcher developed this tool after examining and revising the relevant studies. These were contained in it:

- Data on sociodemographic: It includes the patient's age, gender, educational background marital status, and occupation.
- Clinical data about burn victims, such as the degree of the burn, the size of the burned area, the location of the burn its cause.

Tool (2): Beck Depression Inventory

It was applied in order to assess the degree to which the subjects were affected by depression. It was designed by **Beck et al. (1996)** and it is an instrument consisting of twenty one questions with possible answers ranging from 0 to 3. The cut-off score for the Beck Depression Inventory is 14, with the range going from 14–19 for mild depression, 20–28 for moderate depression, and 29–63 for severe depression.

3.5Pilot study:

After the tools were developed and before data collecting began, a pilot study was conducted. It was carried out on six patients with severe burns for one month who were not included in the actual study. The aim of the pilot study was to evaluate the tools' applicability, usability, and clarity. Additionally, it was used to determine the approximate length of time required for patient interviews and to identify any issues that would obstruct the collection of data. The necessary changes to the tools were made when the pilot study's results were obtained. These changes were about the need to use the slang language in order to adapt with the educational level of the participants. With the chief supervisor's direction, a final format was created.

3.6Field work

Before any data were collected, a formal letter was sent by the Faculty of Nursing at Mansoura University to the Director of the Burn and Plastic Surgery Center, requesting their agreement and permission to carry out the study. About the purpose and significance of the study, all the authorized persons provided the information that was required. The researcher interviewed the severely burned patients and asked them to fill out the questionnaire. The researcher began collecting data by introducing himself to the participants. Each patient gave his/her verbal consent. Each participant was then given a brief explanation of the study's objectives and the kind of questionnaire that needed to be completed. The researcher went two days a week (Sunday and Wednesday) from 8 a.m. to 1 p.m. at Plastic and Burn Surgery Center.

Interviews with those who had been burned were conducted in the inpatient. Each conversation lasted mostly between 20 and 30 minutes. Data was collected throughout one year from (1 January 2018) to (31 December 2018).

3.7Ethical Considerations:-

- The Nursing Faculty's Ethical Committee approved the research proposal.
- There is no risk to the study subjects when the research is being used.
- The study adhered to accepted ethical standards for clinical research.
- After explaining the nature and purpose of the study, oral consent was obtained from the patient who is willing to participate in the study.
- The subject data's confidentiality was ensured.
- They were notified that participation in the study was completely voluntary and that they could cancel consent at any time.

- Anonymity was taken into account when gathering the data.

3.8Statistical Analysis:

The study's data was coded, reviewed, and entered by a computer. The social science statistical package (SPSS) was used for data entry and analysis and its version 22 was used to display the data. Results for qualitative variables were presented using descriptive statistics in the forms of frequencies and percentages. For quantitative variables, we calculate the mean and standard deviation. Spearman correlation test for comparing and identifying correlations between variables. We considered a result to be statistically significant if the P value was less than 0.05. The significance level is high when the P-value is less than 0.001, while P>0.05 was deemed to be nonsignificant.

4.Results

Table (1) reveals that more than two thirds of patients were in ages from 18 to less than 30 years with the mean age 31.6±10. More than half (60%) of them were males and similarly more than half of them were married (51.7%). In relation to level of education one quarter (25%) of the burned patients were illiterate followed by those who were just reading and writing who represented 23.3% of the total sample. The majority of the patients were workers as found in 71.7 % of them.

The data shown in table (2) reveals that 90% of the patients who were injured suffered from burns of the third degree or higher. The large majority (88.3%) of them were less than 50% total body surface area (TBSA). The majority (83.4%) of burn injuries as mentioned in this table had occurred at homes. This table mentions that burns by flame represented the high frequency as found in 45% of all cases. Upper limbs were the most sites of burninjuries followed by face and head as found in 81.8% and 68.7% respectively.

Figure (1) displays and demonstrates that the majority (73.3%) of all hospitalized burn victims had depression. The highest prevalence was severe depression, which was present in more than half (56.6%) of the sample followed by moderate depression (11.7%) and only (5%) had mild depression.

Table (2) reveals that there was a negative correlations between depression and both of age and level of education at r=-0.449 and -0.446. Additionally the significance was highly statistical (p= 0.000) in both relations. Moreover, we can notice from the same table that there was a positive correlation between depression and both of burn degree and TBSA with a statistical significant correlation for both of them

5.Discussion

Burns are injuries that can be caused by the application of heat, chemicals, or electrical sources or radiation to the surface, either on the outside or the inside the body, which contributes to the devastation of the tissue. Burns are horrible experience and terrible kind of trauma that can harm everybody physical health, psychological well-being, and social integration of the victims as physical impairments, scars, depression, posttraumatic stress disorder, and anxiety disorders. **(Jain et al., 2017).**

The aim of the present study is to assess the psychological condition among patients with severe burn during hospitalization and after discharge.

In the current study, the results showed that the commonest age group ranged from 18 to less than 30 years that represented more than two thirds of burned patients with Mean ± SD (31.6±10.0). This could be attributed to the fact that young individuals, in general, have more activities and are subjected to a greater number of potentially dangerous circumstances, whether at home or in the workplace This finding is similar to the finding reported by **Ali and Pervaiz (2019**) who found that the most frequently encountered age range of the burned victims was 18-30years. However, **Pham et al. (2017)** noted that older persons are more susceptible to burn injuries, which result in a larger rate of hospitalizations, and this is not consistent with the current findings.

In regards to sex distribution, the current study revealed a male predominance as men constituted around two thirds of the entire sample. The previous reported findings of the current study, which stated that about three quarters of burned persons in this study were workers and men constituted a significant portion of working activities in our Egyptian society, could be used to explain this male preponderance.

These findings concur with those of **Buja and Hoxha (2018)** retrospective epidemiological study, which revealed that males constituted two thirds of all burn injuries. On the contrary, our current findings are inconsistent with those of recent epidemiological research by **Bayuo et al. (2018)** which showed that more than two thirds of burned patients were female.

Regarding marital status, the present results revealed that more than half of the patients were married. This may be explained by the study's inclusion criteria, which included burn victims

between the ages of 18 and 60, which is often the age of marriage. These findings are consistent with the other results obtained by **Kandeel (2019)** and **Moses et al. (2021)**, who found that the majority of burned patients were married. However, **Ohrtman et al. (2018) and Alipour et al. (2020)** found that more than half of burned patients' were unmarried.

In regards to education, nearly half of the patients with severe burns in this study were illiterate or could only read and write. This could be attributed to lack of knowledge, lack of life skills, and improper application of safety precautions by illiterate people when dealing directly with fire. This current outcome is consistent with the reported results from previous research conducted by **Subramanian and Manjunatha (2020)**, which indicated that almost half of the burned patients were illiterate. However, this finding conflicts with previous findings reported by **Tropez et al. (2017)** who found that the majority of burned patients had just completed their secondary education.

In regards to working status, the majority of patients who had been burned were employed pre-injury. This might explained by the previous mentioned result that more than two thirds of the current sample were from 18 to less than 30 years and these usually are ages of working and building new social life that is associated with financial resources. This result is consistent with results of an Egyptian study done by **Elsherbiny at al. (2011)** found that more than half of burned patients were working pre injury and admitted to burn center.

In terms of the clinical findings of burn patients included in this study, the great majority of patients had burns covering less than or equal to fifty percent of their total body surface area (TBSA). This result is consistent with the findings of **Al-Shamsi and Othman (2017)** and **Toppi et al., (2019)** who revealed that most of the burned patients were less than fifty percent TBSA. These current findings, on the other hand, go against the findings of **Choudhary et al. (2019) and Huang and Su (2021)** who found that the majority of burned patients had TBSA levels that were higher than 50%.

In relation to degree of burn, the majority of the participants in this study had third-degree burns. The preponderance of flame thermal burns, which are linked with creating deep burns quickly after the damage, could be the explanation for this outcome. **(Jeschke et al., 2020).** This present finding is consistent with the results of **Tolouie and Farzan (2019)** who reported that the majority of the burned victims were with third degree burns. On the other hand, the present study disagrees with the results of studies done by **Alajmi et al. (2021)** who stated that bout two thirds of burnt patients were with second degree burns.

According to the current study's findings, upper extremities were the most often burned body part, followed by the head and face. This was attributed by **Kawalec and Pawlas (2014)** to thermal burns (flames and scalds), which frequently have a major negative impact on the upper extremities with a particular emphasis on the hand and wrist of this site. Additionally, a high prevalence of burns to the head and face is frequently and primarily connected to the impact of flame burns **(Tian et al., 2020)**.

In a similar manner, **Ghazanfar et al. (2021)** reported that upper extremities experience the highest percentage of burns, followed by the head, neck, and face. In contrast, an epidemiological study conducted by **Bahçe and Oztaş (2020)** found that burns were more frequently found in the lower limbs than in the upper extremities, the head, and the neck.

As regards to depression, the current study revealed that depression was found in about three quarters of patients with predominance of severe depression. The results of the current study are consistent with those of a longitudinal study by **Dyster-Aas (2008)**, who showed that roughly two thirds of burn patients arrived at burn units having at least one pre-burn psychological condition such as depression. In a study that was conducted in the same direction as our finding, **Ahrari et al. (2013)** revealed that almost two thirds of burned patients were suffering from depression, with the majority of them experiencing severe levels of depression.

The current findings are consistent with those of a study that was conducted by **Baker and Berma (2016)** on hospitalized burn victims in Port Said general hospital. In that study, the researchers noted that more over two thirds of the patients exhibited symptoms of depression. Additionally, our results are supported **by Jutte (2017**) who stated that generally hospitalized intensive care unit patients are more likely than the general population to experience depression because of their critical health conditions. Burn patients typically experience a variety of physical and functional issues that prevent the development of various psychological issues.

In addition, the findings of the current study do not match up with the findings of an older study that was carried out by **Ptacek et al. (2002)**. In that

study, the researchers mentioned that few burned patients rated the degree of their depression as being severe at any point during the process of burn management.

In an additional study, conducted by **Alvi et al., (2009) and Arif & Ramprasad (2013),** the researchers found that mild depression was the most common type of mental disorder among burn patients, with severe depression affecting less than one fifth of those injured. Similarly, mild depression had the highest preponderance among burned patients **(Ali and Pervaiz, 2019).**

Moreover, the present findings revealed that there was a negative significant association between both of age and level of education and depression. Additionally, there was a positive significant relation between both of burn degree and TBSA and psychological disorders. These present results go in the same line with the findings of the recent study done by **El nemr et al. (2020)** who found that there was negative correlation between educational level and depression. Additionally, they reported that there was positive relation between degree of burn and depression.

Furthermore, the results of the study carried out by **Adamczyk and Segrin (2015)**, which found that younger people had higher rates of psychological disorders like depression. Additionally, burned patients who are younger in age have psychological issues because, compared to other age groups, they tend to pay more attention to and give more thought to the idea of their body image **(Sadeghi et al., 2011)**. On the contrary, **Gaylord et al. (2009)** conducted a study on burned patients and found no correlation between age and psychiatric issues in any group. In a similar manner of disagreement with our findings, **Andrews et al. (2010)** reported that there was no association between depressed symptoms in burned patients and various sociodemographic factors.

Additionally, the findings of the study done by **Hudson et al. (2017)** agree with the current study as they revealed that there was a statistical correlation between higher TBSA and third-degree burns and the presence of psychological disorders in burn victims at the time of hospitalization. Additionally, **Ghazanfar et al. (2021)** found a strong correlation between TBSA and depression in burn patients.

This association between degree of burns and experiencing psychological disorders are also reported by **Jain et al. (2017**). This finding was attributed to the fact that patients with severe burns endure lengthy hospital stays, expensive care, a variety of painful wound-care procedures, and other medical and nursing interventions that could increase their psychological distress. In contrast to the current study, they did not find a relation between greater TBSA and psychological morbidities. According to **Andrews et al. (2010)**, there was no significant relation between burn clinical parameters and the presence of depression in adult burned patients.

6.Conclusion:

This study's key finding was that individuals with severe burn injuries who were hospitalized had higher level of depression. This shows the devastating and negative psychological effects on persons who have experienced severe burn trauma.

7.Recommendations:

- Burn centers should establish burn teams comprised of burn and plastic surgery therapists, psychotherapists, social workers, physiotherapists, occupational therapists, specialized nurses, and psychiatric nurse.
- Rehabilitation services should be evaluated and improved to make them more inclusive and accessible, addressing all types of rehabilitation requirements for burn victims, including psychosocial rehabilitation.
- Periodic screening of various mental problems among burn sufferers at various stages is critically needed.

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Table (1):- Frequency Distribution of Socio-demographic Characteristics of burned patients

Items	N=60	%
Age in years		
18- < 30	41	68.3
30- < 45	14	23.4
45 -60	5	8.3
Mean± (SD)	31.6 ±10.079	
Sex		
Male	36	60.00
Female	24	40.00
Marital Status		
Not married	29	49.3

Married	31	51.7
Educational level		
Illiterate / read and write	29	48.3
Basic education	13	21.7
Secondary	12	20.00
University	6	10.00
Occupation		
Not working	17	28..3
Working	43	71.7

Table (2): Frequency distribution of clinical data of severely burned patients.

Items	N = 60	%
Degree of burn		
Second degree	6	10.00
Third degree	54	90.00
Total body surface area percentage (TBSA %)		
≤ 50%	53	88.3
> 50%	7	11.7
Cause of injury		
Flame	27	45.0
Scald	19	31.7
Electrical	6	10.0
Chemicals	8	13.3
Site of burn		
Face & head	41	68.7
Upper limbs	49	81.8
Lower limbs	24	40.00
Anterior trunk	35	58.3

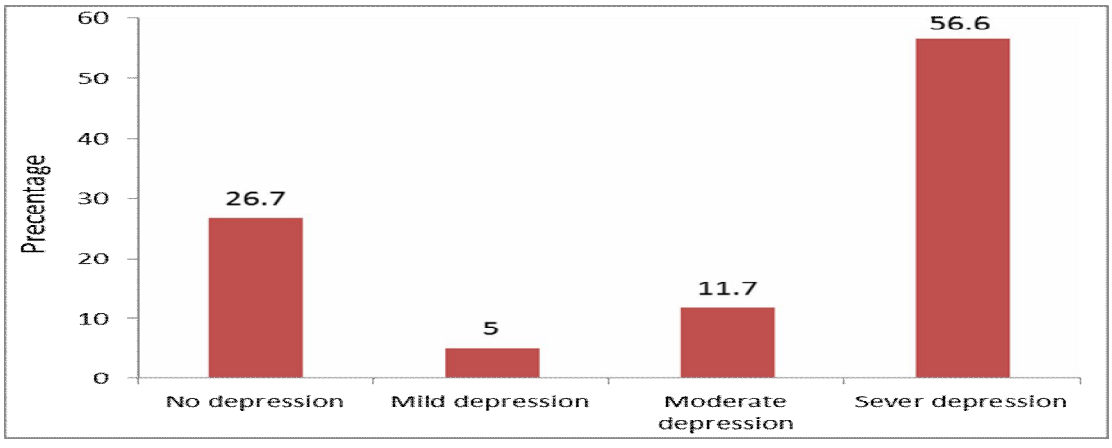

Figure (1): Frequency distribution of depression among burned studied patients (N=60)

Table (3):- Correlation between depression and certain socio-demographic and clinical characteristics of burned patients

	Depression	
	R	**P**
Age	- 0.449	0.000
Educational level	-0.446	0.000
Degree of burn	0.336	0.003
TBSA	0.392	0.002